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Telemetry Data Decoding

Errata

Effective: March 31, 2004

In Figure 3 on page 10, the third generator polynomial for the $k=15$ $r=1/6$ Cassini convolutional code is incorrect. It is given in hex as 315d; the correct value is 715d. The schematic diagram and the logic terms represent this polynomial correctly.

Users are also cautioned not to imply from Figure 17 that Turbo Code performance can be extrapolated below a frame error rate of 10^{-5} . The performance in this region is constrained by an error floor that had not been characterized at the time of publication.

Please replace pages 1, 2, 9, 10, 33, and 34 with the attached material. Pages 9 and 34 have not been changed but are included to enable double-sided printing.

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DSMS Telecommunications Link
Design Handbook

208 Telemetry Data Decoding

Change 1, Released March 31, 2004

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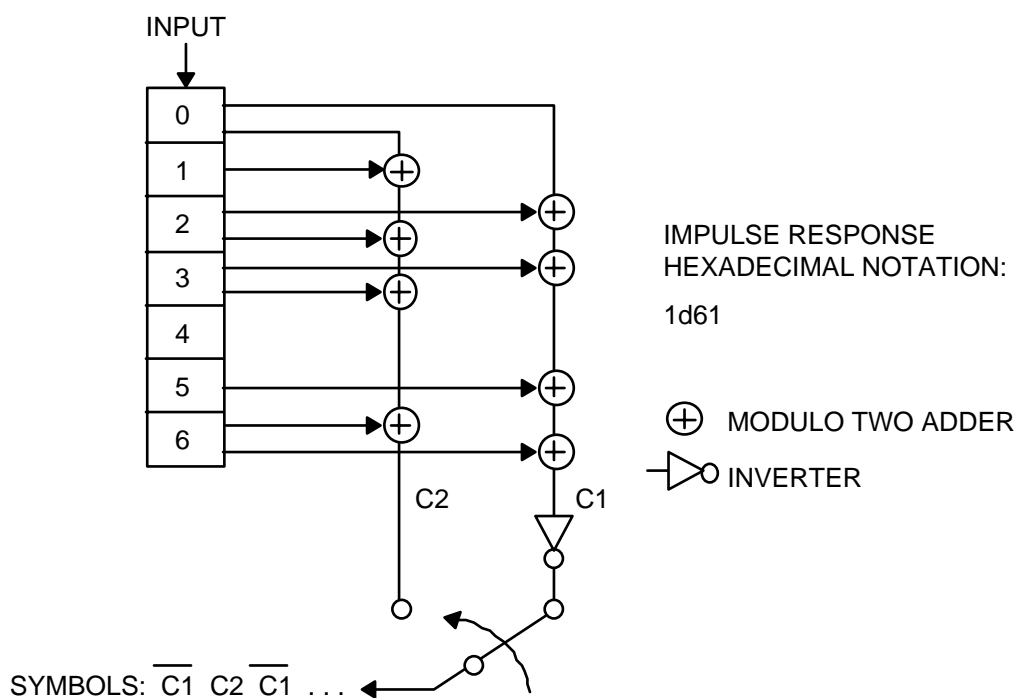
IPN Document Release Date

Change Log

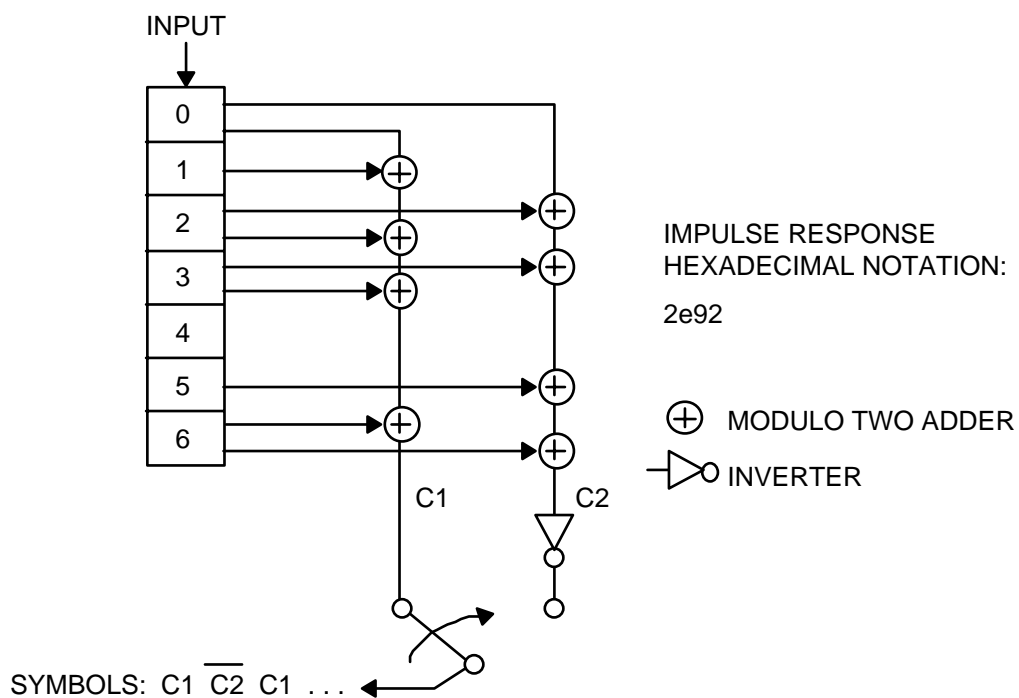
Rev	Issue Date	Paragraphs Affected	Change Summary
Initial	9/15/2000	All	
Chg 1	03/31/2004	Figures 3, 17	Corrects third generator polynomial hexadecimal representation in Figure 3. Removes implication in Figure 17 that Turbo code performance can be extrapolated below FER= 10^{-5}

Note to Readers

There are two sets of document histories in the 810-005 document that are reflected in the header at the top of the page. First, the entire document is periodically released as a revision when major changes affect a majority of the modules. For example, this module is part of 810-005, Revision E. Second, the individual modules also change, starting as an initial issue that has no revision letter. When a module is changed, a change letter is appended to the module number on the second line of the header and a summary of the changes is entered in the module's change log.



a) NASA-DSN CONVENTION



b) CCSDS (NASA-GSFC) CONVENTION

Figure 2. Rate-1/2 Connection Vector Schematics, Constraint Length = 7

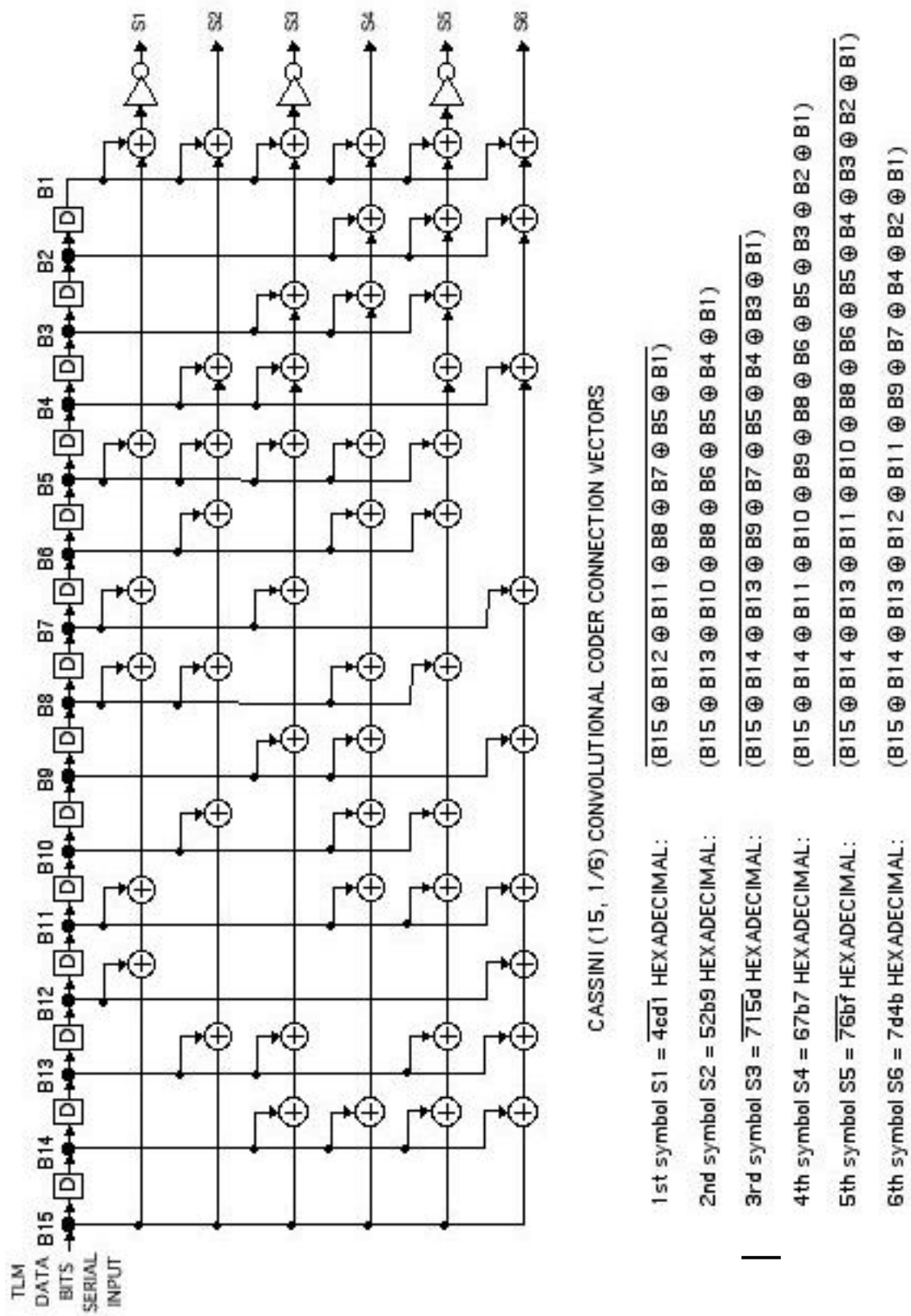


Figure 3. Cassini (15,1/6) Convolutional Encoder Connection Diagram

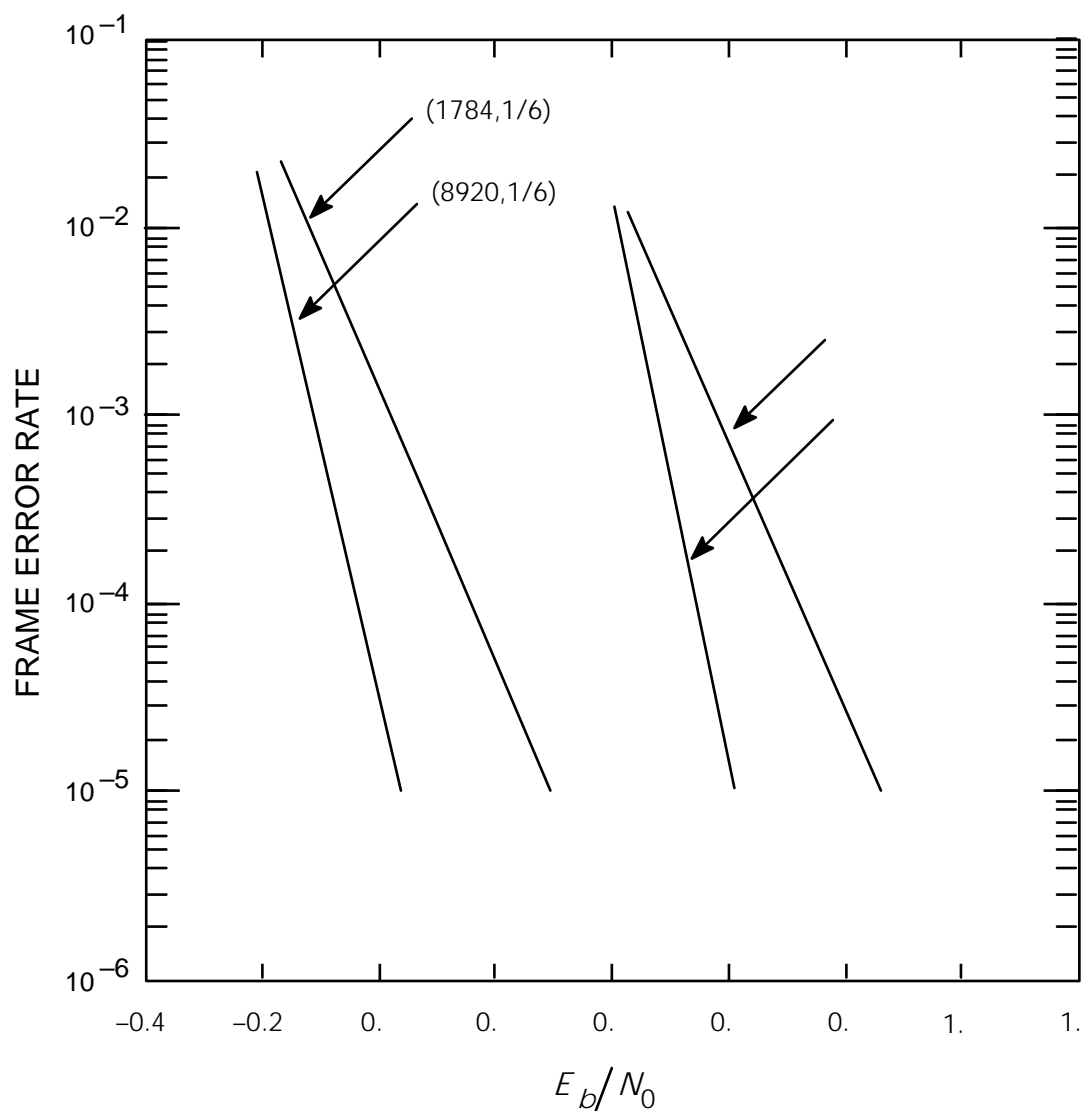


Figure 17. Modeled Performance of DSN Turbo Codes Versus Information Bit E_b/N_0 .

Appendix A ***Reference***

- 1 CCSDS 101.0-B-4, Telemetry Channel Coding, Blue Book. Issue 4, May 1999.